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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,613	07/09/2003	Shawn Hsu	CSCO-7370	2742

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EXAMINER	
RIVAS, SALVADOR E	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,613	HSU ET AL.	
	Examiner	Art Unit	
	Salvador E. Rivas	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding **claims 1, 8, 17 and 21**, the term "virtual circuit" renders the claim vague and indefinite. One of ordinary in the skill would acknowledge that the use of the term "virtual circuit" is a virtual channel and vice versa. Also, a virtual path is used to house a virtual circuit. Hence, from the way the term "virtual circuit " is applied to the claims it is not clear on how you remove a link from a virtual circuit.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 8-10, 17-18 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by **Ma et al. (U.S. Patent # 5,953,338)**.

Regarding **claim 1**, Ma et al. teaches a method comprising: accessing a link utilization limit at a node of a network (CAC 140 (Fig.2), Fig.10 and Column 10 Lines 27-32); comparing said link utilization limit to a utilization of a link coupled to said node ((Fig.10) and Column 13, Lines 27-32)); excluding said link from a virtual circuit if said utilization of said link is greater than said link utilization limit (Column 13, Lines 38-41).

Regarding **claim 8**, Ma et al. teaches a system comprising: means for accessing a link utilization limit at a node of a network (CAC 140 (Fig.2), Fig.10 and Column 10 Lines 27-32); means for comparing said link utilization limit to a utilization of a link coupled to said node ((Fig.10) and Column 13, Lines 27-32)); means for selecting a second link coupled to said node to participate in a virtual circuit if said utilization of said first link is greater than said link utilization limit (Fig.10, and Column 13, Lines 42-58).

Regarding **claims 2 and 9**, and **as applied to claim 1 and 8 above**, Ma et al. clearly shows and discloses a system wherein said utilization of said link comprises bandwidth of said virtual circuit (Column 7 Lines 43-47).

Regarding **claims 3 and 10**, and **as applied to claims 1 and 8 above**, Ma et al. clearly teach a system wherein said link utilization limit (a threshold data rate) is included in an initial attempt to establish said virtual circuit (Fig.9A and 9B).

Regarding **claims 7 and 14**, and **as applied to claim 1 and 8 above**, Ma et al. clearly shows and discloses a system for wherein said node is included in an asynchronous transfer mode network (Column 1, Lines 24-28).

Regarding **claims 17 and 21**, Ma et al. clearly shows and disclose a network switch apparatus (ATM switch (Fig 3)) comprising: a plurality of couplings to access a plurality of links (CAC 140(Fig.2) and Fig.10); a switching fabric to selectively couple information among said plurality of links (ATM Switch (Fig.1)); a computer system coupled to said switching fabric to control said switching fabric (a Centralized Control Module 160 (Fig.2) which comprises of a CAC, Centralized CAC usage monitor, and a BW Manager Module); and a computer-usable medium having computer-readable

program code embodied therein for causing said network switch apparatus to perform a method (Column 14, Lines 27-33), said method comprising: accessing a link utilization limit at a node of a network (CAC 140 (Fig.2), Fig.10 and Column 10 Lines 27-32); comparing said link utilization limit to a utilization of a link coupled to said node ((Fig.10) and Column 13, Lines 27-32)); excluding said link from a virtual circuit if said utilization of said link is greater than said link utilization limit (Column 13, Lines 38-41)..

Regarding **claims 18 and 22**, and **as applied to claims 17 and 21 above**, Ma et al. clearly show and disclose a network switch apparatus (ATM Switch (Fig.2)) and a computer usable medium (a Centralized Control Module 160 (Fig.2)) wherein said link utilization limit is included in an initial attempt to establish said virtual circuit (Fig.9A and 9B).

Claims 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by **Bawa et al. (U.S. Patent # 6,697,333 B1)**.

Regarding **claim 15**, Bawa et al. clearly teaches a method of routing information packets in a network, said method comprising: computing a cost for each of a plurality of links of said network, wherein said cost comprises utilization of said plurality of links (Column 2 Lines 8-14); and routing said information packets via a link having a lowest said cost (Column 2 Lines 8-20).

Regarding **claim 16**, and **as applied to claim 15 above**, Bawa et al., teach a method wherein said cost is less for a given link for a first utilization of said given link than for a second utilization of said given link, wherein said first utilization of said given link is less than said second utilization of said given link (Column 2 Lines 21-39).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 11, 19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ma et al. (U.S. Patent # 5,953,338)** in view of **Bawa et al. (U.S. Patent # 6,697,333 B1)**.

Regarding **claims 4 and 11**, and **as applied to claims 1 and 8 above**, Ma et al. teaches a system (a Centralized Control Module 160 (Fig.2)) except for wherein said link utilization limit is included in an attempt to groom said virtual circuit.

In the same field of endeavor, Bawa et al. teach a system that incorporates an algorithm to groom a virtual circuit (Column 3 Lines 1-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to find a criteria for a route optimization within nodes in a switched digital communications network as shown by Bawa et al. in the system of Ma et al.. The motivation to combine Ma et al. and Bawa et al. is to provide a better path between switching nodes in a switched digital communications network in order to utilize bandwidth efficiently (Bawa et al. Column 3 Lines 5-7).

Regarding **claims 19 and 23**, and **as applied to claims 17 and 21 above**, Ma et al. teach a network switch apparatus (ATM Switch (Fig.2)) and a computer usable medium (a Centralized Control Module 160 (Fig.2)) except for wherein said link utilization limit is included in an attempt to groom said virtual circuit.

In the same field of endeavor, Bawa et al. teaches a system that that incorporates an algorithm to groom a virtual circuit (Column 3, Lines 66-67 and Column 4 ,Lines 1-19).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to find a criteria for a route optimization within nodes in a switched digital communications network as shown by Bawa et al. in the system of Ma et al.. The motivation to combine Ma et al. and Bawa et al. is to provide a better path between switching nodes in a switched digital communications network in order to utilize bandwidth efficiently (Bawa et al. Column 3 Lines 5-7).

Claims 5, 12, 20, and 24 are rejected under 35 U.S.C. .103(a) as being unpatentable over **Ma et al. (U.S. Patent # 5,953,338)** in view of **Bawa et al. (U.S. Patent # 6,697,333 B1),** and in further view of **Donaghey et al. (U.S. Patent Publication Application # 2002/0009088 A1)**.

Regarding **claims 5 and 12**, and **as applied to claims 4 and 11 above**, Ma et al. as modified by Bawa et al., teach a system (a Centralized Control Module 160 (Fig.2)) except for where said link utilization limit is included in a soft reroute setup message.

In the same field of endeavor, Donaghey et al. teaches a flood-tag packet that contains information (e.g. active links, links data rates, data threshold) that when accessed and read by a control device, one of the many the outcomes can be route optimization between switching nodes in a switched digital communications network (Step 1005 and 1010 (Fig.10.) and [0043], Lines 1-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to communicate a criteria for route optimization within nodes in a switched digital communications network as shown by Donaghey et al.

in the systems of Bawa et al. and Ma et al.. The motivation to combine Ma et al., Bawa et al. and Donaghey et al. is to provide a better path (Donaghey et al. [0008], Lines 1-10) between switching nodes in a switched digital communications network in order to utilize bandwidth efficiently.

Regarding **claims 20 and 24**, and **as applied to claims 17 and 21 above**, Ma et al., as modified by Bawa et al., show and disclose a network switch apparatus (ATM Switch (Fig.2)) and a computer usable medium (a CAC Monitor Module 145 (Fig.2)) except for where said link utilization limit is included in a soft reroute setup message.

In the same field of endeavor, Donaghey et al. teaches a flood-tag packet that contains information (e.g. active links, links data rates, threshold data) that when accessed and read by a control device, one of the many the outcomes can be route optimization between switching nodes in a switched digital communications network (Step 1005 and 1010 (Fig.10.) and [0043], Lines 1-7).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to communicate a criteria for route optimization within nodes in a switched digital communications network as shown by the flood-tag packet in Donaghey et al. in the systems of Bawa et al. and Ma et al.. The motivation to combine Ma et al., Bawa et al. and Donaghey et al. is to provide an "optimal path" (Donaghey et al. [0008], Lines 1-10) between switching nodes in a switched digital communications network in order to utilize bandwidth efficiently.

Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ma et al. (U.S. Patent # 5,953,338)** in view of **The ATM Forum Technical Committee ("PNNI Addendum for Generic Application Transport Version 1")**.

Regarding **claims 6 and 13**, and **as applied to claim 4 and 11 above**, Ma et al. clearly shows and discloses a system (CAC 140(Fig.2) and Fig.10) except for wherein said link utilization limit is included in a generic application transport information element.

In the same field of endeavor, **The ATM Forum Technical Committee "PNNI Addendum for Generic Application Transport Version 1"**, a generic application transport information element (section 3.1 page 9) allows for a given set of parameters to be loaded into a network switch device (e.g. ATM switch) that will determine the best path for the communication between two nodes in a digital communication network.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate a generic application transport information element as shown by The ATM Forum Technical Committee in the flood tag packet used in the system of Ma et al.. The motivation to combine Ma et al. and The ATM Forum Technical Committee document is to set up router with a given set of parameters to determine (negotiate and establish) the most optimal route for two given nodes in a digital communications network in order to utilize bandwidth efficiently.

Conclusion

5. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or early communications from the Examiner should be directed to Salvador E. Rivas whose telephone number is (571) 270-1784. The examiner can normally be reached on Monday-Friday from 7:30AM to 5:00PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272- 3078. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Salvador E. Rivas
S.E.R./ser

July 3, 2007

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER